

REMARKS

Claims 1-20 are pending. Claims 1, 19, and 20 have been amended. Reconsideration and allowance of the present application based on the following remarks are respectfully requested.

It is respectfully requested that this Amendment be entered as it places the application in condition for allowance or at least in better form for appeal.

In the Drawings

The drawings filed on January 2, 2001 were objected to by the draftsman for various informalities. Applicants are in the process of preparing formal drawings and will file the formal drawings in a supplemental response as soon as they are received.

Claim Rejections Under 35 U.S.C. § 103

A. Claims 1-4 were rejected under 35 U.S.C. § 103(a) over DeBoer et al. (U.S. Patent No. 5,910,880). Applicants respectfully traverse this rejection.

Claim 1, as amended, recites in part, a method of fabricating a capacitor comprising forming a first amorphous TaON thin film directly on a lower electrode. In contrast, DeBoer teaches forming a nitride layer 36 on a first capacitor plate 34 and forming a Ta₂O₅ layer on the nitride layer, which is not the same as forming a TaON thin film directly on the lower electrode. Therefore, DeBoer does not teach or suggest that an amorphous TaON thin film is formed directly on the lower electrode as recited in claim 1.

Claims 2-4 are believed allowable for at least the reasons presented above with regard to claim 1 by virtue of their dependence from claim 1. Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection.

B. Claims 5-20 were rejected under 35 U.S.C. § 103(a) over DeBoer in view of Yang et al. (U.S. Patent No. 5,956,594). Applicants respectfully traverse this rejection.

Claims 5-18 are believed allowable for at least the reasons presented above with regard to claim 1 by virtue of their dependence from claim 1. Additionally, claims 19 and 20 recite forming an amorphous TaON thin film directly on the lower electrode as recited in claim 1. Since neither DeBoer (as established above) or Yang teach forming the TaON layer on the lower electrode, no combination of these two references teaches or suggests forming a

TaON thin film on the lower electrode. Accordingly, Applicants respectfully request reconsideration and withdrawal of this rejection.

Conclusion

In view of the foregoing, the claims are now believed to be in form for allowance, and such action is hereby solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Attached is a marked-up version of the changes made to the claims by the current amendment. The attached Appendix is captioned **"Version with markings to show changes made"**.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,
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Enclosure: Appendix

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claims 1, 19, and 20 have been amended as follows:

1. (Twice Amended) A method for fabricating a capacitor of a semiconductor device, the method comprising:

forming a lower electrode on a semiconductor substrate;

forming a dielectric layer on the lower electrode by

forming a first amorphous TaON thin film directly on the lower electrode;

annealing the first amorphous TaON thin film in an NH₃ atmosphere;

forming a second amorphous TaON thin film on the lower electrode; and

annealing the second amorphous TaON thin film to form a multilayer TaON dielectric film; and

forming an upper electrode over the TaON dielectric film.

19. (Amended) A method for fabricating capacitors for semiconductor devices, comprising:

forming a lower electrode on a semiconductor substrate;

forming a first amorphous TaON thin film directly over the lower electrode;

annealing the first amorphous TaON thin film in an NH₃ atmosphere;

forming a second amorphous TaON thin film;

annealing the second amorphous TaON thin film a first time;

annealing the second amorphous TaON thin film a second time, thereby forming a TaON dielectric film having a multi-layer structure; and

forming an upper electrode over the TaON dielectric film.

20. (Amended) A method for fabricating capacitors for semiconductor devices, comprising:

forming a lower electrode on a semiconductor substrate;

nitriding an upper surface of the lower electrode in an NH₃ atmosphere;

forming a first amorphous TaON thin film directly over the lower electrode;

annealing the first amorphous TaON thin film in an NH₃ atmosphere;

forming a second amorphous TaON thin film;
annealing the second amorphous TaON thin film at least once, thereby forming a
TaON dielectric film having a multi-layer structure; and
forming an upper electrode over the TaON dielectric film.

End of Appendix